

ABSTRACTS-YEAR 2004

RESEARCH

COMPUTER SCIENCE

RSPR CS-04-01

MIDDLEWARE SUPPORT FOR MULTICAST-BASED CONTENT DISSEMINATION

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The Internet and communication technologies continue to grow at an exponential rate, leading to the problem of access latency and overloaded servers. One of the major problems on the Internet is the scalable dissemination of information. The current unicast pull framework simply does not up to these types of work loads. Multicasting is an effective method to guarantee scalability of data transfer. Apart from research trend on isolated data management issues in multicast environment, the integration of these research contributions such as caching, scheduling, indexing and consistency maintenance and transfer them into a working software distribution called middleware solution is considered as increasingly important area of research in the field.

This research mainly focuses on development of both server- and client-side middleware to achieve a maximum performance using applied and fundamental research investigations.

On the applied research side, it focuses on the design and conceptual implementation of middleware for multicast data dissemination that transparently provides applications with a flexible array of data management services. On the fundamental research side, beside new algorithms and optimizations for each component, this research aims to provide an insight into the functional synergy of the different components. An integrated approach highlights gaps in the state of the art, and leads to new research problems and solutions. In particular, this middleware exposes the performance and functional trade-off between existing data management algorithms and existing or proposed multicast protocols. Consequently, this approach investigates new research issues in the field of middleware technology.

RSPR CS-04-02

A LIBRARY MANAGEMENT SYSTEM USING PHP PROGRAMMING LANGUAGE AND MYSQL DATABASE

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Library automation, which started in late 70s in few special libraries, has now reached most of the university libraries. It is yet to implement in many libraries of institutes, college, and others owing to the traditional system. This research study comes up to utilize open source library management software in order to solve such our problems. The use of open source library management helps the users to take care of their problem without expending money for the software. This study implemented OpenBiblio library software for the case model selected- CSIM library at Asian Institute of Technology. That could able to manage the library with OPAC, circulation, cataloging, and administration functionality. In this study PHP programming language, MySQL database software and IIS/Apache server and other help tools are installed and configured to make the system work on Windows NT operating system. The CSIM Program library resources (books) and list of users (staff and faculties) are entered to the system database and tested on local host and on the AIT network for its functionality.

INFORMATION MANAGEMENT

RSPR IM-04-01

CITIZEN RELATIONSHIP MANAGEMENT THROUGH E-FORUM: A CASE STUDY OF WASTEWATER TREATMENT ISSUES

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In recent years, the Thai Government has encouraged citizens to voice their opinions on a number of issues. This has been labeled Government to Citizen (G2C). In this research, the G2C sector of e-government focuses on Citizen Relationship Management (CzRM). The highest stage of evolution in CzRM is participative democracy. One channel to promote participative democracy is through e-forums, which can enable government to become "citizen-centric" to reflect the concept of good governance. The purpose of this study is to determine the features of an e-forum, and recommend ways on how it can be effectively conducted.

In Thailand, e-forums have never been used as a formal consultative channel with citizens. However, citizens can post their ideas in the various government websites, but their ideas do not reach decision makers, nor are they integrated into the policy making process. The government has yet to organize a formal e-forum to consult citizens as it has done in off-line public

hearings. In this research, a survey was conducted to determine the required features of an e-forum. Based on the survey results, the e-forum was created which included these main features. To test the e-forum, wastewater issues were posted and opinions were requested. This trial lasted one month. Opinions were documented, and the evaluation results were analyzed to help assess how e-forums can be effectively conducted. A conclusion and recommendations are presented so that CzRM can be developed to reach its potential in participative democracy.

RSPR IM-04-02

COMPUTATION OF DISTRIBUTION FUNCTIONS AND PERCENTILE POINTS FOR POPULAR STATISTIC TESTS

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The purpose of this research is to compute and approximate the distribution functions and/or percentile points for some important distributions, such as normal, gamma, chi-square and Kolmogorov-Smirnov. The study also applied the tests based on these distributions to analyze the scores of a number of subjects taught at Tay Nguyen University in Vietnam.

It was found that

- All the computation methods described can provide accurate values of the distribution functions and percentile points of the considered distributions.

- In a number of cases, the distribution functions and percentile points can also be represented satisfactorily by polynomial curves or surfaces.

- Although the mean of the scores for a subject can vary from year to year in a two-sample test, the scores over the entire period of four years appear to belong to the same distribution for four out of five subjects. With the computation methods and the approximate formulas provided, one can readily use these in other applications.